

First Joint Meeting Brazil Italy of Mathematics

Special Session: Elliptic PDEs

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Title: Eigenvalues and maximum principle for very degenerate operators

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Abstract: Let Ω denote a bounded smooth domain of \mathbb{R}^N and let $P_k^-(M)$ denote the sum of the k smallest eigenvalues of the symmetric matrix M . We shall study properties of the solutions of the Dirichlet problem $P_k^-(D^2u) + \mu u = f(x)$ in Ω with zero boundary conditions. In particular we shall study the validity or lack of validity of the maximum principle, with the construction of various explicit examples and counter examples. Some regularity results will be proven and many open questions will be raised. This is an ongoing work with G. Galise and H. Ishii.